

# Lake Sturgeon Success Stories in the Great Lakes



*Photo Credit: Adam Lintz*

John Lindgren (MNDNR), Rob Elliott (USFWS), Marty Holtgren (MDNR),  
Mike Thomas (MDNR) and Dawn Dittman (USGS)

**Great Lakes AOC Meeting, Dearborn, MI  
March 2-3, 2016**



# St. Louis River AOC Lake Sturgeon Rehabilitation Program

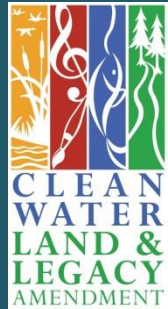
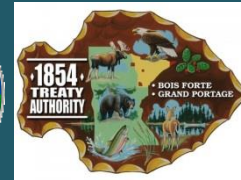
(John Lindgren Minnesota DNR)





# St. Louis River Lake Sturgeon Rehabilitation Program

## - Addressing a Delisting Target for Removal of BUI #2 -



## Stocking

| Year            | Minnesota     |               |            | Wisconsin      |               |        | Total          |                | Age in 2016 |
|-----------------|---------------|---------------|------------|----------------|---------------|--------|----------------|----------------|-------------|
|                 | FRY           | FGL           | Strain     | FRY            | FGL           | Strain | FRY            | FGL            |             |
| 1983            |               |               |            | 102,000        | 2,700         | Wolf R | 102,000        | 2,700          | 33          |
| 1984            |               |               |            | 162,000        | 18,000        | Wolf R | 162,000        | 18,000         | 32          |
| 1985            |               | 4,900         | Wolf R     | 59,000         | 2,700         | Wolf R | 59,000         | 7,600          | 31          |
| 1986            |               | 400           | Wolf R     |                |               |        |                | 400            | 30          |
| 1987            |               |               |            |                |               |        |                |                |             |
| 1988            |               | 18,200        | Wolf R     |                | 6,000         | Wolf R |                | 24,200         | 28          |
| 1989            |               | 7,200         | Wolf R     | 50,000         | 100           | Wolf R | 50,000         | 7,300          | 27          |
| 1990            |               | 10,300        | Wolf R     | 25,000         |               | Wolf R | 25,000         | 10,300         | 26          |
| 1991            |               | 5,500         | Wolf R     | 96,000         | 4,500         | Wolf R | 96,000         | 10,000         | 25          |
| 1992            | 83,000        |               | Wolf R     |                | 13,500        | Wolf R | 83,000         | 13,500         | 24          |
| 1993            |               |               | Wolf R     | 7,000          | 19,300        | Wolf R | 7,000          | 19,300         | 23          |
| 1994            |               |               | Wolf R     | 151,000        | 14,500        | Wolf R | 151,000        | 14,500         | 22          |
| 1995            |               |               |            |                |               |        |                |                |             |
| 1996            |               |               |            |                |               |        |                |                |             |
| 1997            |               |               |            |                |               |        |                |                |             |
| 1998            |               | 6,800         | Sturgeon R |                |               |        |                | 6,800          |             |
| 1999            | 46,000        |               | Sturgeon R |                |               |        | 46,000         |                | 17          |
| 2000            |               | 7,980         | Sturgeon R |                |               |        |                | 7,980          | 16          |
| <b>TOTAL WR</b> | <b>83,000</b> | <b>46,500</b> |            | <b>652,000</b> | <b>81,300</b> |        | <b>735,000</b> | <b>127,800</b> |             |
| <b>TOTAL SR</b> | <b>46,000</b> | <b>14,780</b> |            |                |               |        | <b>46,000</b>  | <b>14,780</b>  |             |





# Population Assessment

Micro Tagging  
(>61,000 tagged fingerlings)



PIT Tagging  
(>500 tagged juveniles)



Acoustic Tagging  
(32 fish to be tagged in 2016)



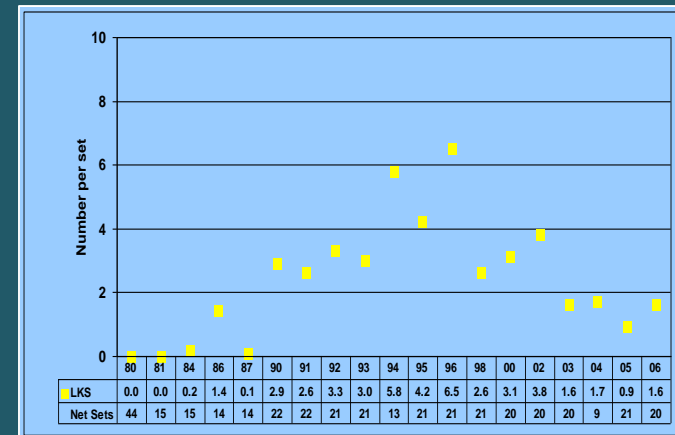
Spring Spawning  
Assessment



Spring Drifting Fry  
Assessment



Summer Index Netting  
Assessment



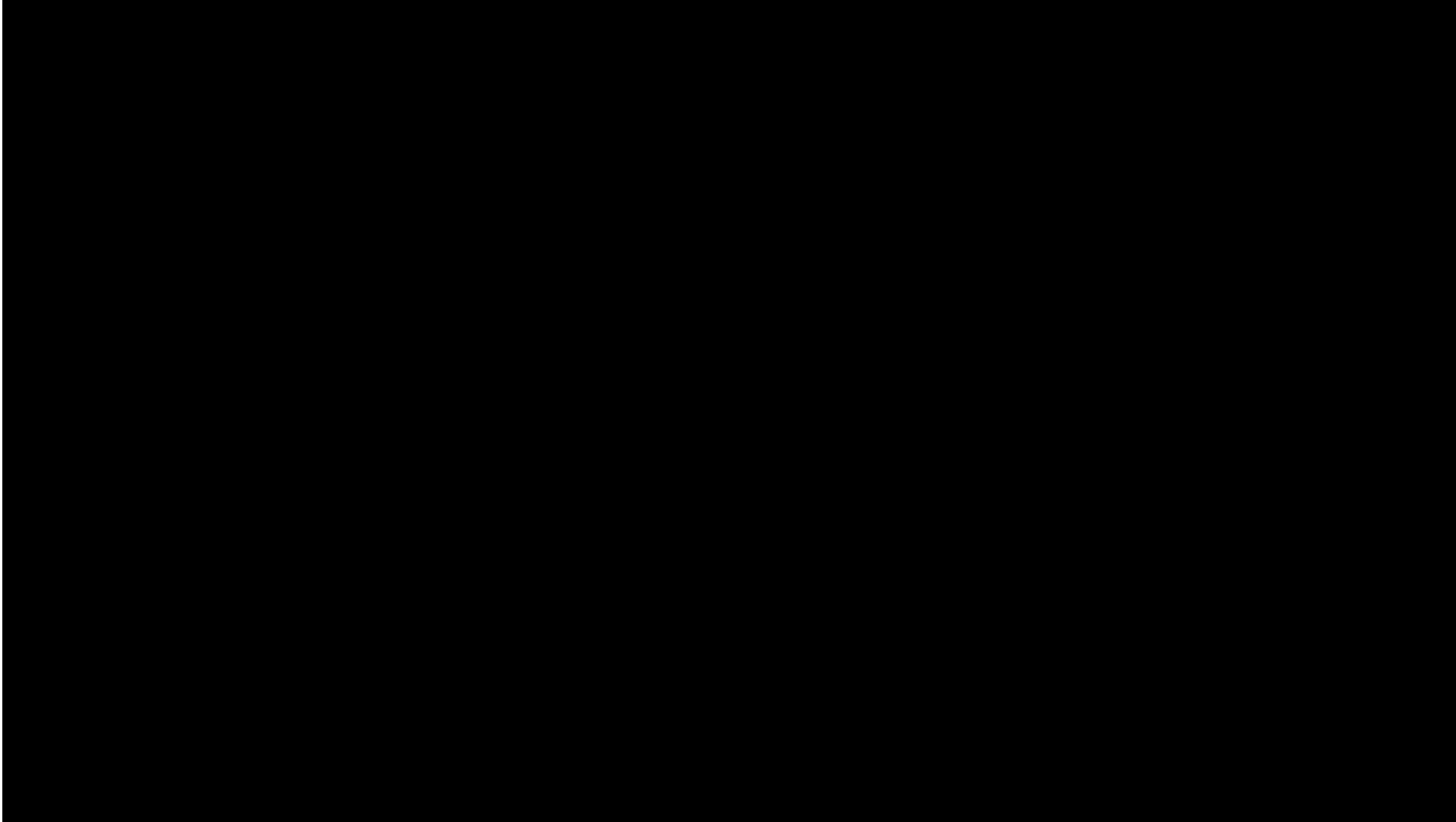


## An aerial photograph of the Fond du Lac Dam. The river flows from the background towards the foreground, passing over a series of low, rocky dam structures. The banks are heavily forested with green trees. On the right bank, there is a construction site with a red excavator and other equipment. The water is dark and turbulent as it flows over the dam. The sky is clear and blue. The text "Fond du Lac Dam" is overlaid in yellow at the bottom of the image.





# St. Louis River AOC Lake Sturgeon Video





# Menominee River AOC Fish Passage Program

(Rob Elliott US Fish and Wildlife Service)





# Menominee River Fish Passage



# Moving Lake Sturgeon Safely Around the Lower Dams on the Menominee

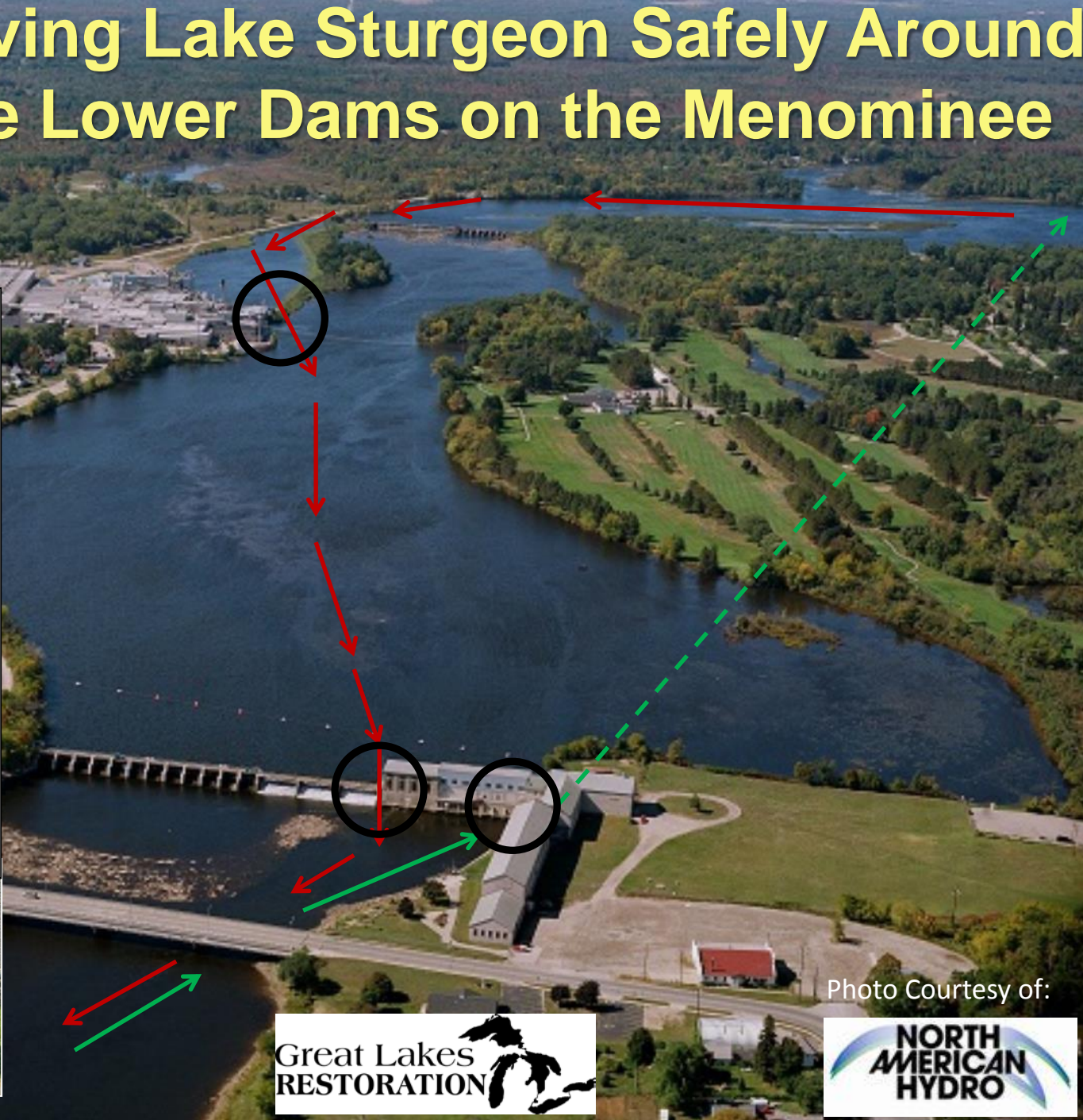
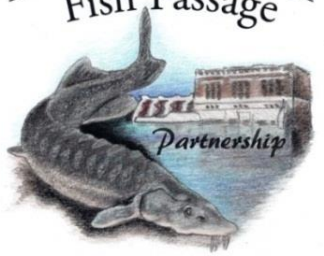


Photo Courtesy of:





## Menominee River Fish Passage



# Moving Lake Sturgeon Safely Around the Lower Dams on the Menominee



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Photo Courtesy of:

Great Lakes  
RESTORATION





# **Menominee River AOC Fish Passage** **Video**



# Lake Michigan Streamside Rearing Programs

(Marty Holtgren Michigan DNR)





# Streamside Rearing Facilities in Lake Michigan Basin

Multi-Jurisdictional  
*Old and New Partners*  
Basin-wide

Milwaukee River AOC  
Kalamazoo River AOC





# Partners



Marty Holtgren (MDNR), Ed Baker (MDNR), Rob Elliott (USFWS) and  
Brad Eggold (WDNR)



# What happened? How We Did It?

## Results:

- >20,000 sturgeon stocked since 2003
- Dozens of partnerships

## How:

- Formed partnerships around sturgeon and rivers.
- Developed shared values and goals for sturgeon and river restoration.
- Cultural reconnections.



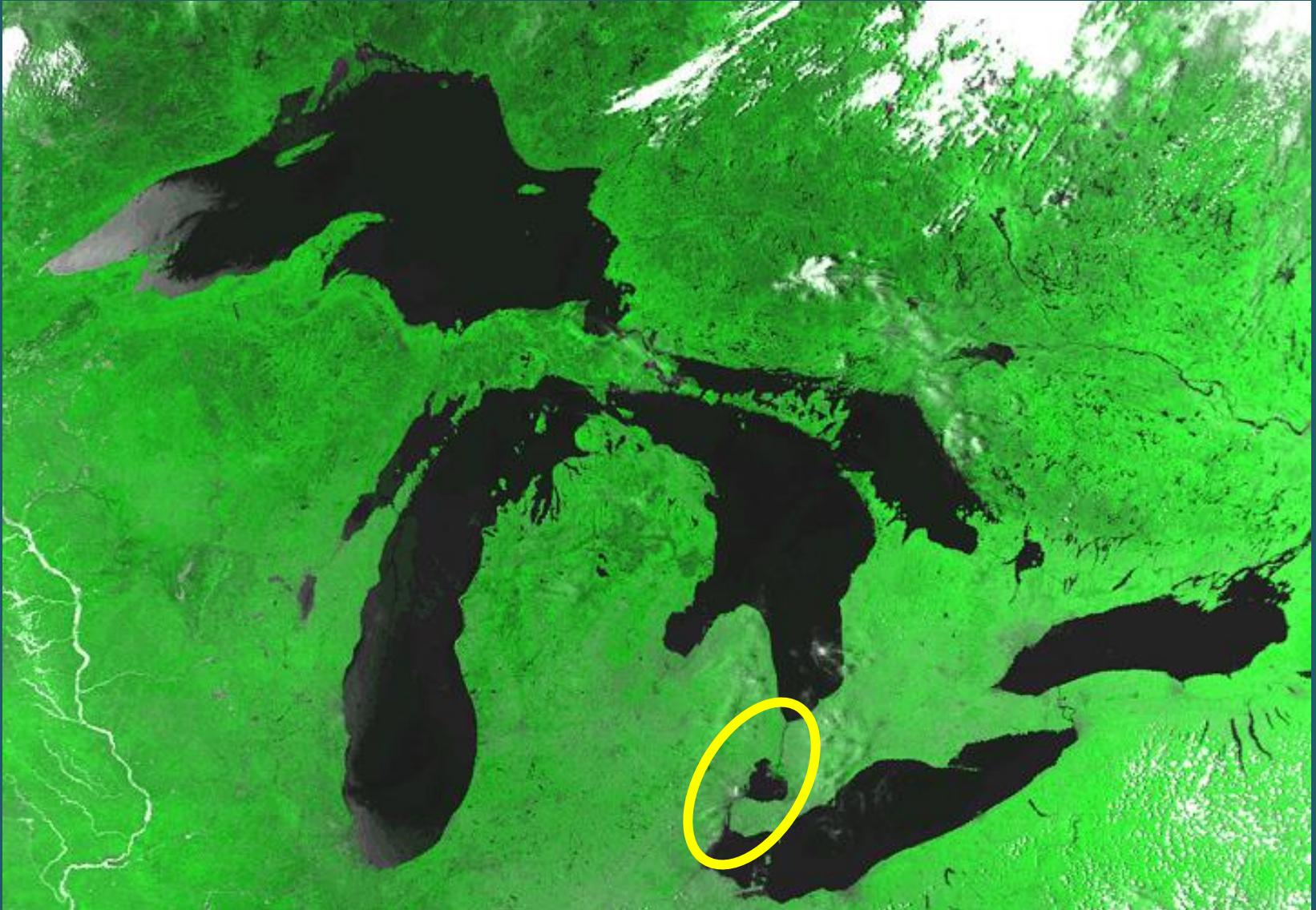
# **Lake Michigan Streamside Rearing** **Video**



# St Clair AOC - Detroit River AOC

## Sturgeon Habitat Program

(Mike Thomas, Michigan DNR)

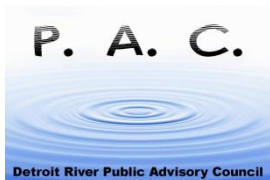




# Partners



Ministry of Natural Resources



## Michigan Coastal Management Program





# Identify the Problem – Understand Your System

## St. Clair – Detroit River System

### Historically

- ◆ Huge runs of fish spawned here.
- ◆ Largest commercial GL fishery in late 1800s.
- ◆ Habitat destruction – Loss of critical habitat.

### Today

- ◆ Origin of much of Lake Erie's commercial catch, \$2 billion/yr.
- ◆ More than 65 species of fish.
  - 16 are threatened or endangered.
- ◆ Largest remaining population of lake sturgeon in the Great Lakes.





# Reef Locations in the St Clair Detroit River System

## Reef Siting

### Early Projects

- Locations selected via expert knowledge of the system

### Recent Projects

- System-wide models were developed to identify candidate sites





# **St Clair - Detroit River System Video**



# Genesee River AOC

## Lake Sturgeon Restoration/Research

(Dawn Dittman, USGS)



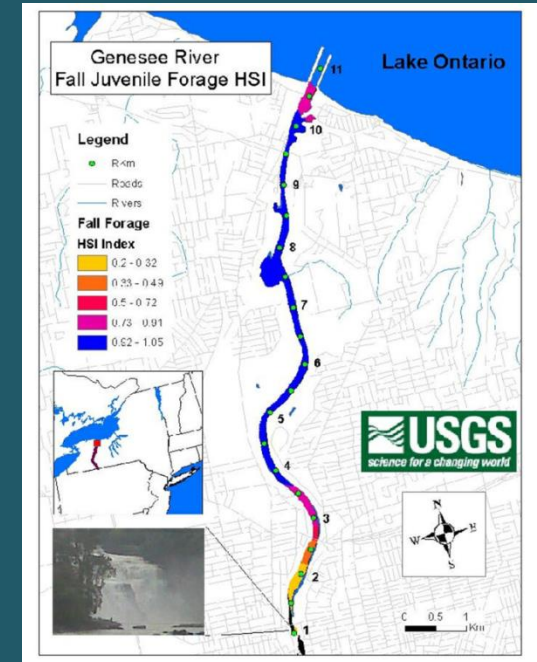


De-Listing Criteria: Lake sturgeon of different life stages inhabit the Genesee River up to the Lower Falls and the Embayment, or physical and biological habitat are suitable for sturgeon

## Evaluation of Habitat Use by Experimentally Released Juveniles:

2003-2004: 1,900 Fall Fingerlings

Mark/recapture, survival/ habitat use / retention in the river.



**2013 average size  
847mm 4.09kg  
33 inches and 9 lbs**



**High  
Survivorship of  
Stocked Lake  
Sturgeon**



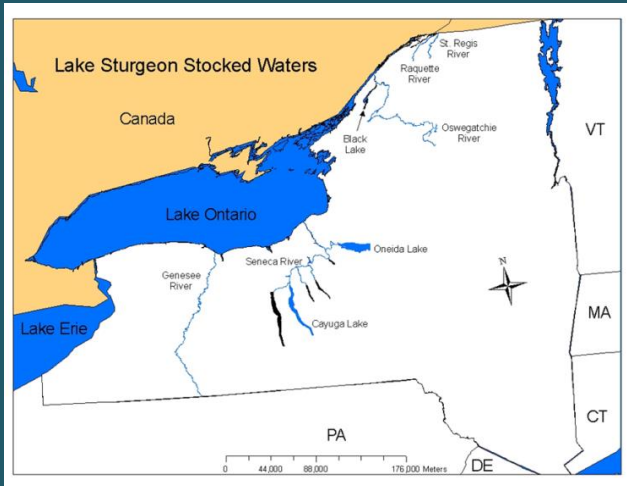


# GLRI Project: Sturgeon Blood & Tissue Assay of Pollutants in Rochester Embayment AOC

## BIOINDICATOR OF ENVIRONMENTAL HEALTH

**Goal: Compare the Rochester AOC BUI linked chemical contaminant concentrations in Lake Sturgeon blood serum with contaminant levels in Lake Sturgeon from a control water.**

- Age Matched Lake Sturgeon (Stocked in 2003 & 2004)
- Genesee River: Rochester Embayment AOC
- Oswegatchie River



The Lake Sturgeon tissue concentration comparison between the Rochester Embayment AOC and the Oswegatchie River non-AOC control site results indicate no AOC-specific BUIs for PCB congeners, dioxins/furans, mirex, mercury or cadmium. Detected elevated silver and nickel concentrations in the Genesee sturgeon tissues are not of animal or human health concern or specific to any fish consumption restrictions listed in health or AOC advisories.





# **Genesee River AOC Video**



# Niagara River AOC and Massena/Akwesasne AOC

(Dawn Dittman, USGS)





# Massena/Akwesasne AOC

## Populations BUI Delisting Criteria

- Lake Sturgeon or other sentinel species are present and successfully reproducing in the AOC

Spawning Population Assessment :

St. Lawrence River at Massena

2009-10 (442 fish) 1997-98 (354 fish) 1969-70 (134 fish)

2014: 199 captured

5 % Females



# Niagara River AOC

BUI – Degradation of Fish and Wildlife Populations

Population Status of Lake Sturgeon.

Upper Niagara 2012-2014

Chris Legard

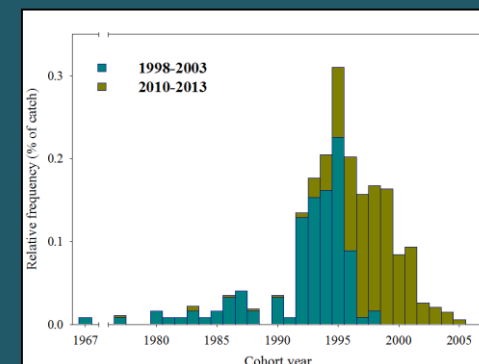
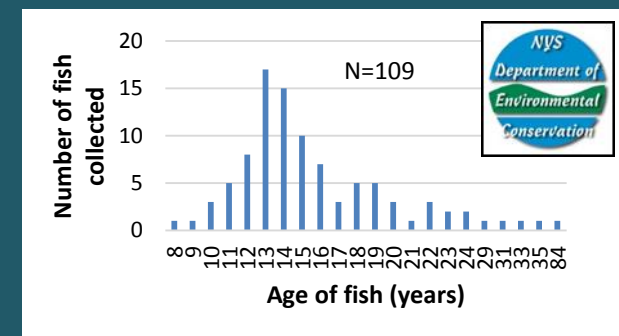
Lower Niagara River: Population Status

Sex, stage, contaminants

Habitat selection Diet



Dimitry Gorsky , Gregory R. Jacobs, John A. Sweka,  
Michelle Casto-Yerty, and Betsy Trometer





# Questions?

